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| APPLICATION NO.                        | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/660,561                             | 09/12/2003  | Jeong-Wook Lee       | 030681-572          | 5312             |
| 21839                                  | 7590        | 02/09/2007           | EXAMINER            |                  |
| BUCHANAN, INGERSOLL & ROONEY PC        |             |                      | MULPURI, SAVITRI    |                  |
| POST OFFICE BOX 1404                   |             |                      | ART UNIT            | PAPER NUMBER     |
| ALEXANDRIA, VA 22313-1404              |             |                      | 2812                |                  |
| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE   | DELIVERY MODE        |                     |                  |
| 3 MONTHS                               | 02/09/2007  | PAPER                |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

|                              |                 |              |
|------------------------------|-----------------|--------------|
| <b>Office Action Summary</b> | Application No. | Applicant(s) |
|                              | 10/660,561      | LEE ET AL.   |
|                              | Examiner        | Art Unit     |
|                              | Savitri Mulpuri | 2812         |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 09 November 2006.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-15 and 18 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-15, 18 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

This action is in response to the applicant's communication filed on 11/9/2006.

### ***Claim Rejections - 35 USC § 103***

Claims 1-15, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsakakos et al (2004/0077156) in combination with Zhang et al (2003/0010971).

The rejection is maintained same as in previous office action.

### ***Response to Arguments***

Applicant's arguments filed 11/9/2006 have been fully considered but they are not persuasive. Applicant/s argues that Tsakalakos et al in combination with Zhang et al is improper combination because Tsakalakos et al teaches a simple process of using copolymer thin film which undergoes a selective etching to form nanoholes and then growing thin film in the exposed surface 206 to promote lateral and vertical growth, whereas Zhang et al teaches complex multistep process uses AAO film "86" through anodization as etch mask to form patterned mask "96" (see fig. 4 and 5). However both Tsakalakos et al and Zhang et al teaches forming nanoscale mask to grow nitride based semiconductor layer, where Tsakalakos et al uses etching block copolymer to leave an array nanoscale features and Zhang uses anodization aluminum to AAO with nanoscale features and both masks eventually used to pattern the underneath nitride layer silicon oxide layer or titanium layer. Both references are analogous art and both teach ultimately growing GaN based layer in the patterned mask, which is formed by

etching block copolymer in case of Tsakalakos et al and anodization of aluminum in case of Zhang et al..

Applicant argues that Zhang et al do not teach titanium layer having melting point of 1200 °C . However, Tsakalakos et al teaches inorganic mask is silicon oxide or silicon nitride or tungsten or GaN (see para0039) and Zhang teaches mask with nanoholes is composed of stalk of titanium on silicon oxide. Some of the Applicant arguments are not relevant because applicant argues over the portions of zhang reference , which was not relied on , for example, fig 2-3).

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Savitri Mulpuri whose telephone number is 703.305.5184. The examiner can normally be reached on Mon-Fri from 8 a.m. to 4.30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentrift, can be reached on 571-272-1677. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Savitri Mulpuri  
Primary Examiner  
Art Unit 2812